

WHAT IS CLAIMED IS:

1. An image display apparatus comprising:
space modulation means for modulating incident
light and outputting the modulated incidence light;
5 illumination means for generating a plurality of
light beams having different colors, time sequentially
switching the generated light beams and illuminating
said space modulation means with the light beam; and
projection means for projecting light emitted from
10 said space modulation means upon an image display
screen,
wherein a white light illumination period is
provided for said illumination means per each interval
between illumination periods for the plurality of light
15 beams having different colors.
2. An image display apparatus according to claim
1, wherein during the white light illumination period
provided for the plurality of light beams having
20 different colors, a white luminance emphasizing process
is dispersively performed.
3. An image display apparatus according to claim
1 or 2, wherein synchronously with the white light
25 illumination period provided for the plurality of light
beams having difference color, a period of a white
luminance emphasizing signal applied to said space

09853662 051401
T04T50" 2995860

modulation means is set longer than the white light illumination period and overlapped with a color light illumination period.

5 4. An image display apparatus comprising:

space modulation means for modulating incident light and emitting the modulated incidence light;

illumination means for generating a plurality of light beams having different colors, time sequentially switching the generated light beams and illuminating said space modulation means with the light beam; and

projection means for projecting light emitted from said space modulation means upon an image display screen,

15 wherein said illumination means has a white light illumination period having a length corresponding to an illumination light transition period provided per each interval between illumination periods for the plurality of light beams having different colors, and said space modulation means repeats modulation twice during a
20 signal period overlapping the white light illumination period, by using a same modulated signal for a white light gradation display having a length corresponding to an illumination light transition period to thereby
25 set the signal period having a length twice the illumination light transition period.

09853662 051401

09853662 "051401

5. An image display apparatus comprising:
space modulation means for modulating incident
light and emitting the modulated incidence light;
illumination means for generating light beams of
5 three primary colors of red (R), green (G) and blue
(B), time sequentially switching the generated light
beams and illuminating said space modulation means with
the light beam; and
projection means for projecting light emitted from
10 said space modulation means upon an image display
screen,
wherein said illumination means has a plurality of
groups each having at least each of three boundary
period between red and green, green and blue, and blue
15 and red, respectively of illumination periods of the
three primary colors, of the plurality of groups, at
least one group is supplied with a signal different
from signals supplied to other groups, and a same group
is applied with a same signal during each of the three
20 boundary period between red and green, green and blue,
and blue and red.

6. An image display apparatus comprising:
space modulation means for modulating incident
25 light and emitting the modulated incidence light;
illumination means for generating light beams of
three primary colors of red (R), green (G) and blue

(B), time sequentially switching the generated light beams and illuminating said space modulation means with the light beam; and

projection means for projecting light emitted from
5 said space modulation means upon an image display screen,

wherein said illumination means has a plurality of groups each having at least each of three boundary period between red and green, green and blue, and blue
10 and red, respectively of illumination periods of the three primary colors, and the plurality of groups includes a first group having a white light illumination period having a length corresponding to an illumination light transition period during each
15 boundary period and a second group without the white light illumination period during each boundary period.

7. An image display apparatus according to claim 6, wherein for the first group, a same modulated signal
20 for a white light gradation display having a length corresponding to the illumination light transition period is applied twice to set the signal period having a length twice the illumination light transition period, the signal period overlapping the white light
25 illumination period, a same signal being applied to a same group during each of the three boundary periods between red and green, green and blue, and blue and

09853662 051401

red, and for the second group, a modulated signal for the white light gradation display having a length corresponding to the illumination light transition period is applied once, a signal period overlapping the white light illumination period, and a same signal being applied to a same group during each of the three boundary periods between red and green, green and blue, and blue and red.

8. An image display apparatus according to claim 4, 6 or 7, wherein the illumination light transition period of said illumination means is a period while a light spot on a rotary color filter plate traverses a boundary of the color filter plate.

9. An image display apparatus according to claim 4, 6 or 7, wherein the illumination light transition period of said illumination means is a response period of a color filter such as liquid crystal.

10. An image display apparatus according to claim 4, 6 or 7, wherein the illumination light transition period of said illumination means is a switching period between light emission sources such as LED.

11. An image display apparatus according to any one of claims 1, 4, 5 and 6, wherein said space

modulation means is a space modulation unit for performing time divisional modulation.

12. An image display apparatus according to any
5 one of claims 1, 4, 5 and 6, wherein said space modulation means is a space modulation unit using liquid crystal.

13. An image display apparatus according to any
10 one of claims 1, 4, 5 and 6, wherein said space modulation means is a space modulation unit of a MEMS type.

14. An image display apparatus according to any
15 one of claims 1, 4, 5 and 6, wherein said space modulation means is a space modulation unit disposed with micro mirrors.

15. An image display apparatus according to any
20 one of claims 1, 4, 5 and 6, wherein said illumination means generates color field sequential illumination light by using a rotary color filter divided into a plurality of areas having different transmission wavelength bands.

25

16. An image display apparatus according to claim 8, wherein said illumination means generates color

00053562 051401

field sequential illumination light by using a rotary color filter divided into a plurality of areas having different transmission wavelength bands.

5 17. An image display apparatus according to any
one of claims 1, 4, 5 and 6, wherein said illumination
means generates color field sequential illumination
light by switching between a plurality of liquid
crystal filters having different transmission
10 wavelength bands.

18. An image display apparatus according to claim 9, wherein said illumination means generates color field sequential illumination light by switching between a plurality of liquid crystal filters having different transmission wavelength bands.

19. An image display apparatus according to any one of claims 1, 4, 5 and 6, wherein said illumination means generates color field sequential illumination light by switching between light sources such as LED.

20. An image display apparatus according to claim
10, wherein said illumination means generates color
25 field sequential illumination light by switching
between light sources such as LED.

21. An image display method of generating a plurality of light beams having different colors, time sequentially switching the generated light beams, illuminating a space modulation means with the light beam, and projecting light modulated by and output from the space modulation means upon an image display screen,

wherein a white light illumination period is provided in each period between illumination periods for the plurality of light beams having different colors.

22. An image display method according to claim 21, wherein during the white light illumination period provided for the plurality of light beams having different colors, a white luminance emphasizing process is dispersively performed.

23. An image display method according to claim 21 or 22, wherein synchronously with the white light illumination period provided for the plurality of light beams having difference color, a period of a white luminance emphasizing signal applied to the space modulation means is set longer than the white light illumination period and overlapped with a color light illumination period.

24. An image display method of generating a plurality of light beams having different colors, time sequentially switching the generated light beams, illuminating a space modulation means with the light beam, and projecting light modulated by and output from the space modulation means upon an image display screen,

wherein a white light illumination period having a length corresponding to an illumination light transition period is provided in each period between illumination periods for the plurality of light beams having different colors, and an operation of the space modulation means overlaps the white light illumination period by applying a modulated signal for a white light gradation display having a length corresponding to the illumination light transition period.

25. An image display method of generating a plurality of light beams of three primary colors, time sequentially switching the generated light beams, illuminating a space modulation means with the light beam, and projecting light modulated by and output from the space modulation means upon an image display screen,

wherein of a plurality of groups each having at least each of three boundary period between red and green, green and blue, and blue and red, respectively

09053662 054404

of illumination periods of the three primary colors, of
the plurality of groups, at least one group is supplied
with a signal different from signals supplied to other
groups, and a same group is applied with a same signal
5 during each of the three boundary period between red
and green, green and blue, and blue and red.

26. An image display method of generating a
plurality of light beams of three primary colors, time
10 sequentially switching the generated light beams,
illuminating a space modulation means with the light
beam, and projecting light modulated by and output from
the space modulation means upon an image display
screen,

15 wherein a plurality of groups each having at least
each of three boundary period between red and green,
green and blue, and blue and red, respectively of
illumination periods of the three primary colors,
include a first group having a white light illumination
20 period having a length corresponding to an illumination
light transition period during each boundary period and
a second group without the white light illumination
period during each boundary period.

25 27. An image display method according to claim
26, wherein for the first group, a same modulated
signal for a white light gradation display having a

09353652 051401

length corresponding to the illumination light
transition period is applied twice to set the signal
period having a length twice the illumination light
transition period, the signal period overlapping the
5 white light illumination period, a same signal being
applied to a same group during each of the three
boundary periods between red and green, green and blue,
and blue and red, and for the second group, a modulated
signal for the white light gradation display having a
10 length corresponding to the illumination light
transition period is applied once, a signal period
overlapping the white light illumination period, and a
same signal being applied to a same group during each
of the three boundary periods between red and green,
15 green and blue, and blue and red.

28. A storage medium storing a program for
allowing a computer to realize a function of each means
of the image display apparatus recited in any one of
20 claims 1, 2, 4 to 7.

29. A storage medium storing a program for
allowing a computer to realize the image display method
recited in any one of claims 21, 22, 24 to 27.

30. A program for allowing a computer to realize
a function of each means of the image display apparatus

recited in any one of claims 1, 2, 4 to 7.

31. A program for allowing a computer to realize
the image display method recited in any one of claims
5 21, 22, 24 to 27.

09853662 051401
F04F50 239E5850